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10 CFR Part 53: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

Comment On: NRC-2019-0062-0012

Preliminary Proposed Rule Language: Risk-Informed, Technology-Inclusive Regulatory Framework for Advanced Reactors

Document: NRC-2019-0062-DRAFT-0179

Comment on FR Doc # 2020-24387

Submitter Information

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Organization: Hybrid Power Technologies LLC

General Comment

Attached please find our letter of November 2 2021 re: 10CFR53 General Summary Remarks. Specifically, use of 10CFR53 for guidance

Attachments

Hybrid Pwr to NRC ltr Nov 2 2021 re General Remarks

Michael F. Keller
President
Hybrid Power Technologies LLC



November 2, 2021
10CFR53: General Summary Remarks

Mr. John Tappert
Director, Division of Rulemaking, Environmental, and Financial Support
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Hybrid Power Technologies LLC Input on the NRC Rulemaking Plan on, Risk-Informed, Technology-Inclusive Regulatory Framework; Proposed 10CFR53.

Mr. Tappert:

The various requirements contained in the proposed 10CFR53 vastly exceed their counterparts in the existing Part 50 of the Code of Federal Regulations. Such complexity is clearly inconsistent and at odd with the REF. (1) Congressional Act directing modernization of the licensing process. In particular, the Act's "risk informed" considerations are being overridden by the NRC staff attempting to create unwarranted new requirements that are not commiserate with level of risk.

This letter stems from a portion of the October 28, 2021 Public Meeting that centered on the REF. (2) alternative technology inclusive requirements for the proposed 10CFR5X.

Near the close of the meeting, I observed that the general licensing process should be straightforward. Simplistically, the advanced reactor designer: (1) identifies their nuclear safety functions, as required by the high-level top-tier 10CFR53 regulation; (2) provides justification for the methodology used to create the advanced reactor's specific nuclear safety functions; and (3) demonstrates that the advanced reactor's design, construction, and operation properly supports the nuclear safety functions. The NRC staff process reaches a conclusion that compliance with 10CFR53 has been achieved.

Paraphrasing, the above broad-brush assessment drew the NRC staff observation that the current 10CFR50 establishes an approach for the NRC staff to follow because key requirements are clearly identified (*presumably 10CFR50 Appendix A*). The staff further advised that the approach I outlined was tried before circa 1990 (*I gather in conjunction with the Next Generation Nuclear Plant effort*) and apparently did not work (*my inference*). As I recall, no attempt was made to issue a new CFR to support the NGNP.

The discussion prompted a post meeting historical review on my part. A common thread throughout the licensing process of the last 50 or so years is ever more prescriptive activities on the part of the NRC staff (i.e. a proliferation of numerous and more prescriptive regulatory guides and allied items). In my opinion, the NRC staff is clearly dictating through guidance documents how conventional nuclear reactors must be designed, built and operated. Strikes me as rather odd, considering the NRC staff has never designed, built, or operated a nuclear power plant.

This brings me to the fact that industry codes and standards are used for designing, building and operating power plants, including nuclear units. The NRC staff is invariably a part of the process

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November 2, 2021
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for developing these major codes and standards. However, the NRC staff has a habit of creating their own “requirements” (i.e. non-mandatory regulatory guides) because the NRC staff does not agree with particular elements in the codes and standards.¹ In effect, because the NRC staff does not get their way, licensing efforts are made needlessly more complex for all parties.

The NRC staff’s prescriptive guidance mentality is now being carried to new extremes as the proposed 10CFR53 has been configured to tightly plot how advanced reactors must be designed, built, and operated. The NRC staff would do well to embrace the REF. (1) Act’s guiding principle of modernization (i.e. simplification) instead of using 10CFR53 to bludgeon advanced reactors using the current highly prescriptive regulatory philosophy. That approach has largely led to the demise of the deployment of new conventional water reactors because both costs and schedules cannot be reasonably contained as a result of highly detailed “guidance” that is actually massive regulatory overreach.

In closing, the general requirements of 10CFR50 are high-level in nature and much more flexible relative to NRC staff “guidance” being embedded in 10CFR53.

As we have repeatedly advised, the most efficient and cost effective method to implement the REF. (1) Act is to employ the fundamental relevant elements of the existing 10CFR50 (and/or 52) while providing high-level requirements necessary to simply delineate high-level risk informed considerations. The approach we recommend readily complies with the precepts for altering the Code of Federal Regulations, while the existing NRC staff approach does not. Further, the depth of NRC staff license review efforts should be commiserate with the level of risk.

We are somewhat hopeful that a proper 10CFR53 will be the end result of the development effort.

Regards,

Michael F Keller

Michael F. Keller Professional Engineer – State of Kansas
President
Hybrid Power Technologies LLC

References:

- (1) Nuclear Energy and Modernization Act, S512 enacted into law.
- (2) [ML21270A005](#) - Rulemaking: Discussion Table for Preliminary Rule Language for the Part 53 Rulemaking: Part 5X - "Technology-Inclusive Alternative Requirements For Commercial Nuclear Plants

Endnotes

1. *Issues of code/standard disagreements should be amicably settled as part of code/standard development process. Only intractable material disagreements involving the Code of Federal Regulations should warrant special regulatory action.*